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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,618	04/14/2004	Masamitsu Takahashi	500.43776X00	5089

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EXAMINER

DOAN, DUC T

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 08/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,618

Applicant(s)

TAKAHASHI ET AL.

Examiner

Duc T. Doan

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/22/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 1-7 are in the application.

Claims 1-7 are rejected.

Specifications

The disclosure is objected to because of the following informalities:

Page 34, line 15, the phrase "the differential has already been deleted". The differential recited in this phrase has not been described. It is unclear the differential referring to the differential management table or referring to the differential delete start time (specification, page 33 line 21).

Page 34 describes the "written information" for the blocks in Fig 10B. However in the Fig 10B blocks s1016, s1017, it recites, "write position". It's unclear what are all the components of the "written information".

Page 34, line 10, it is unclear of the definition of "a write object".

The description of the pairing of second logical volume and the first secondary logical volume as "local pair" in page 18, line 22; page 38, lines 26 is unclear. Since they are belong to difference storage devices, it contradicts to the description on page 14, lines 20-25.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Ohran (US 5835953) and in view of Cochran (US 2004/0230859).

As for claim 1, Ohran describes a method of controlling a storage system comprising a first storage device (Ohnan's Fig 1: #20 mass storage; column 8 lines 9-40) having a first storage volume provided at a first site, a second storage device (Ohran's Fig 1: #24 backup storage; column 9 lines 12-40) having a second storage volume provided at a second site, and a third storage device (Ohran's Fig 1: #22 snapshot storage; column 14 lines 1-8) having a third storage volume provided at a third site, the storage devices being connected so as to communicate with each other (Ohran's Fig 1; column 9 line 65 to column 10 line 20), wherein the method includes the steps of: storing a copy of data stored in the first storage volume in the second storage volume at a first time (Ohran's column 10, lines 21-41); writing the copy of data written in the first storage volume into the third storage volume (Ohran's column 13, line 30 to column 14, line

Art Unit: 2188

7); storing, in the third storage device, a write history of the data written in the first storage volume as a first differential management table after the first time (Ohran's Fig 3: #52,48,58; column 13, lines 48-55); and allowing the third storage device to make contents of the data stored in the second storage volume consistent with contents of the data stored in the first storage volume using the first differential management table and the third storage volume of the third storage device (Ohran's column 11, lines 38-47). Ohran does not describe the claim's detail of storage devices locations. However, Cochran describes teaches redundancy storage systems wherein data copies are stored in storage devices located at three different sites (Cochran's Fig 5; page 3, paragraph 36). It would have been obvious to one of ordinary skill in the art at the time of invention to include the distributing storage scheme as suggested by Cochran in Ohran's system to provide data recovering during disasters such as earthquakes, tornados (Ohran's page 1, paragraph 1). As for claim 2, Ohran describes wherein the step of storing the write history of the data written in the first storage volume as the first differential management table after the first time comprises the steps of: allowing the third storage device to compare time set in a data write request received from the first storage device with the first time; and allowing the third storage device to store the write history of the data in the first differential management table when the write time set in the data write request received from the first storage device is later than the first time (time T0) (Ohran's column 11, lines 20-47 describes changes data between time T0 to T1 is kept as an incremental backup).

As for claim 3, Ohran describes wherein the method further comprises a step of allowing the third storage device to store the first differential management table on which the write history of the data written in the first storage volume is recorded after the first time (Ohran's column 11,

Art Unit: 2188

lines 20-48) and a second differential management table on which the write history of the data written in the first storage volume is recorded after a second time subsequent to the first time (Ohran's column 17, line 55 to column 18 line 8).

As for claim 4, the claim is rejected based on the same rationale as in the rejection of claim 1.

Claim 5 rejected based on the same rationale as in the rejection of claim 2.

Claim 6 rejected based on the same rationale as in the rejection of claim 3.

As for claim 7, it recites the limitation of claim 1. The claim is rejected based on the same rationale as in the rejection of claim 1.

Conclusion

When responding to the office action, Applicant is advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2188

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin L. Ellis
Primary Examiner

